PP-191

Which Method used for the Assessment of Left Ventricule Ejection Fraction is more Correlated with the Left Ventricule Global Strain?

Süleyman Karakoyun[1], Mustafa Ozan Gürsoy[2], Kamuran Kalkan[3], Zakir Lazoğlu[3], Halil İbrahim Tanboğa[3], Tayyar Gökdeniz[4]
[1]Doç. Dr.Yaşar Eryılmaz Doğubeyazıt State Hospital, Department of Cardiology, Ağri, [2]Iğdır State Hospital, Department of Cardiology, Iğdır, [3]Ataturk University, Medical School, Heart Center, Department of Cardiology, Erzurum, [4]Kafkas University, Medical School, Department of Cardiology, Kars

Background: The assessment of LVEF is dependent on the calculation method and the operator's experience. In this study, we aimed to investigate the relationship between LVEF evaluated by 3 methods (Teicholz, biplane Simpson and visual assessment) and left ventricule longitudinal strain values calculated with the utility of speckle tracking echocardiography.
Methods: This prospective study was comprised of 107 patients who were admitted to cardiology clinic between November 2012 and April 2013. Exclusion criteria included age < 18 years, atrial fibrillation, severe valvular stenosis or insufficiency, concomitant systemic disease, constrictive pericarditis, restrictive or hypertrophic cardiomyopathy and poor visual quality. All patients provided written informed consent prior to transthoracic echocardiographic examination. LVEF measurements were performed by Teicholz and biplane Simpson and visual assessment based on current recommendations. 2D echocardiography images were obtained from LV apical 4-chamber (4C), LAX (long axis) and 2-chamber (2C) views. Strain measurements were reported as the peak longitudinal strain (LS) for 4C, LAX, and 2C views, and global strain (GS) was calculated by the average of the three apical views. Statistical analysis were conducted using MedCalc (MedCalc, version 11.3.8.0, statistical software).
Results: The mean age of the study population was 58±13 (F:62, M: 45). Twenty-nine patients (31.2%) had hypertension, 9 (9.2%) had diabetes mellitus, 21 (22.6%) had hyperlipidemia, 20 (21.5%) had history of smoking and 56 (52%) had coronary artery disease. The LVEF values measured by biplane Simpson, Teicholz, and visual assessment were 59±11, 63±17 and 57±10, respectively. Area under curve (AUC) was 0.685, 95% CI:0.580-0.777 for biplane Simpson method whereas AUC for visual assesment and Teicholz were 0.657, 95% CI:0.551-0.752 and 0.531, 95% CI:0.425-0.635, respectively. The ROC curve analysis of LVEF values measured by the three methods were compared. There was significant statistical difference between biplane Simpson and Teicholz methods (p:0.020), whereas there was no statistical difference between biplane Simpson and visual assessment or between visual assessment and Teicholz (p:0.261 and p:0.070, respectively). Significant correlation was observed between LVEF measured by biplane Simpson and GS (r:-0.445, p<0.001).
Conclusıon: The biplane Simpson method, which is used for the evaluation of LVEF, has higher correlation with GS compared to Teicholz method and visual assessment.

POSTERS

PP-192

The Effect of Respiratory Functions and Pulmonary Artery Pressure on Right and Left Ventricular Diastolic Function

Şeref Alpsoy[1], Aydın Akyüz[1], Dursun Cayan Akkoyun[1], Mustafa Oran[2], Levent Cem Mutlu[3], Birol Topçu[4], Hasan Değirmenci[1], Banu Çiçek Yalçın[2]
[1]Namık Kemal University, Faculty of Medicine, Cardiology Department, Tekirdag, [2]Namık Kemal University, Faculty of Medicine, Internal Medicine Department, Tekirdag, [3]Namık Kemal University, Faculty of Medicine, Chest Disease Department, Tekirdag, [4]Namık Kemal University, Faculty of Medicine, Biostatistics Department, Tekirdag

Introductıon: The aim of the study was to evaluate of biventricular diastolic function and to investigate the effect of pulmonary function and pulmonary artery pressure on diastolic functions in people with chronic obstructive pulmonary disease (COPD).
Materials-Method: Sixty patients with COPD and 40 healthy individuals were assessed by echocardiography and pulmonary function tests (PFTs). Forced expiratory volume in one second [FEV1]) and forced vital capacity [FVC]) were determined. Correlation and regression analysis were performed to investigate the relationship between FEV1, FEV1/FVC, mean pulmonary artery pressure (MPAB) and diastolic function parameters.
Results: Right ventricular diameter and free wall thickness and mitral E / mitral septal annulus E' were higher whereas tricuspid E and E / A, tricuspid lateral annulus E 'and E' / A ', mitral septal annulus E' and E '/ A' values were lower in the COPD group (all p values of <0.05). FEV1 was positively correlated with lateral tricuspid annulus E 'and E' / A '. Tricuspid E/A, tricuspid lateral annulus E 'and E' / A ', mitral septal annulus E' and E'/A' values were positively correlated with FEV1/FVC, whereas negatively correlated with MPAB. Mitral E/ mitral anulus septal E' was negatively correlated with FEV1/FVC, and positively correlated with MPAB. FEV1/FVC was decisive for tricuspid lateral annulus E' and E'/A', mitral annulus septal E' and E'/A' values.
Conclusıon: Right and left ventricular diastolic function are impaired in patients with COPD. Chronic hypoxia and increased pulmonary pressure are important factors in the development of diastolic dysfunction in patients with COPD.

Demographic and anthropometric characteristics, pulmonary function tests and biochemical parameters of the patients and the control group

	Patients group, n=60	Control group, n=60	p value*
Age, years	49 ± 7.4	48.5 ± 7.2	0.134
Gender, female (n, %)	16 (% 26.7)	11 (% 27.5)	0.831
BMI, kg/m2	26 ± 5	25.8 ± 2.6	0.647
Sistolic BP	126 ± 12	128 ± 17	0.848
Diastolic BP	80 (60 – 90)	78 (60 – 90)	0.281
Smoking, (n, %)	16 (% 26.7)	11 (% 27.5)	0.745
Hipertension, (n, %)	10 (% 16.7)	6 (% 15)	0.635
Dyslipidemia, (n, %)	22 (% 36.7)	14 (% 35)	0.728
Duration of disease, years	9 ± 3.3 (4 - 15)	0	<0.001
Hematocrit, %	52 (36 - 65)	38 (35 - 46)	<0.001
Heart rate, beat/min	86 (63 - 115)	75 (55 - 95)	<0.001
FEV1, %	67 (24 - 92)	93 (89 - 120)	<0.001
FVC, %	87 (45 - 138)	93 (85 - 110)	0.003
FEV1/FEVC	59.2 (35 - 69)	89.5 (81 - 95)	<0.001
Fasting glucose, mg/dl	92 (53 - 113)	93 (77 - 114)	0.821
Total cholesterol, mg/dl	200 (115 - 318)	195 (121 - 260)	0.1
Triglyceride, mg/dl	130 (43 - 368)	143 (52 - 288)	0.838
LDL-cholesterol, mg/dl	133 (34 - 231)	130 (63 - 191)	0.314
HDL-cholesterol, mg/dl	44 (18 - 64)	42 (30 - 56)	0.642
Uric acide, mg/dl	5 (3 - 9)	5.2 (4 - 8)	0.980
CRP, mg/dl	3.5 (1 - 10)	3 (2 - 12)	0.134

*Chi square, Student t test and Mann Whitney U test. BMI:Body mass index, BP:Blood Pressure, FEV1: Forced expiratory volume in one second, FVC: Forced vital capacity, HDL: High density lipoprotein, LDL: Low density lipoprotein.

Table 2. Two-dimensional, M-mode and conventional Doppler findings of the patients and the control group

	Patients group, n= 60	Control group, n= 60	p değeri *
LVDD, mm	47 (40 - 56)	46 (41 - 53)	0.525
LVSD, mm	30 ± 3.67	29 ± 3.21	0.053
IVS, mm	11 (8 - 13)	11 (8 – 13)	0.211
PW, mm	11 (9 - 13)	11 (9 - 13)	0.189
LVEF, %	66.± 4.2	66.4 ± 3.9	0.165
Left atrium, mm	31.5 (25 - 41)	31 (26 - 40)	0.882
Aortic root, mm	32 ± 3.2	30.5 ± 4	0.520
Mitral E, cm/s	70.5 (60 - 110)	79 (46 - 108)	0.145
Mitral A, cm/s	65 (35 - 98)	70 (45 - 89)	0.406
Mitral E/A	1.12 (0.6 - 2.3)	1.13 (0.6 - 2.12)	0.936
DT, ms	171 (115 - 204)	182.5 (95 - 226)	0.486
IVRT, ms	89 (68 - 114)	85.5 (70 – 108)	0.148
RV MPI	0.45 ± 0.08	0.44 ± 0.037	0.124
RVDD, mm	26 (20 - 28)	21 (18 -25)	<0.001
RVFWT, mm	4 (2.8 – 4.6)	3 (2.3 – 3.5)	<0.001
Tricuspid E, cm/s	52.5 (42 - 66)	71 (40 - 95)	<0.001
Tricuspid A, cm/s	64.5 (55 - 90)	63 (40 - 80)	0.418
Tricuspid E/A	0.83 (0.5 - 1.7)	1.15 (0.6 - 1.9)	<0.001
RV MPI	0.43 ± 0.07	0.43 ± 0.04	0.364
MPAP, mmHg	27.3 (20.3 – 41.6)	0	<0.001

*Student t test and Mann Whitney U test, DT: Deceleration time, IVRT: Isovolumetric relaxation time, IVS: Interventricular septum, LV MPİ: Left ventricle myocard performance index, MPAP: Mean pulmonary artery pressure, RVDD: Right ventricle diastolic diameter, LVDD: Left ventricle diastolic diameter, LVSD: Left ventricle diastolic diameter, LVEF: Left ventricle ejection fraction, PW: Posterior wall, MPAP: mean pulmonary artery pressure,RV MPİ: Right ventricle myocard performance index, RV FWT: Right ventricle free wall thickness.

Table 3. Tissue Doppler findings of patient and control group

Variables	Patients group n=60	Control group n=60	p value*
Septal E', cm/s	9.35 (4 - 15)	11 (7- 18)	0.001
Septal A', cm/s	11 (6 - 18)	11 (8 - 17)	0.843
Septal S', cm/s	9 (6 - 13)	9 (7 - 12)	0.752
Septal E'/ A'	0.81 ± 0.26	1.1 ± 0.39	0.004
Mitral E/septal E'	8.2 (5.7 – 14)	6.8 (5 -12)	<0.001
Lateral E', cm/s	11.2 (6 - 18)	11 (8 - 20)	0.761
Lateral A', cm/s	8.9 (4 - 16)	9 (5 - 14)	0.682
Lateral S', cm/sn	9 (6 - 14)	8.9 (8 - 15)	0.061
Lateral E'/ A'	1.26 (0.6 – 2.2)	1.29 (0.7 -2.33)	0.894
Mitral E/ lateral E'	6.9 (4 -14)	7.2 (4 -9.9)	0.612
Anterior E', cm/s	11 (4 - 18)	11 (7 - 16)	0.368
Anterior A', cm/s	10 (6 – 16)	10.5 (6 – 16)	0.601
Anterior S', cm/s	9 ± 1.7	9 ± 1.6	0.734
Anterior E'/ A'	1.02 (0.67 – 2.14)	1.04 (0.56 - 1.83)	0.789
İnferior E', cm/s	9 (5 – 14)	9.2 (6 – 17)	0.060
İnferior A', cm/s	9 (4 – 14)	9 (4 – 14)	0.348
İnferior S', cm/s	9 (6 – 18)	8 (6 – 17)	0.326
İnferior E'/ A'	1.0 (0.5 - 2)	1.09 (0.6 – 1.85)	0.091
Tricuspid E', cm/s	7.5 ± 2.2	11.4 ± 3.3	<0.001
Tricuspid A', cm/sn	9.3 (4.6 – 11.5)	9.3 (8.4 – 14.5)	0.203
Tricuspid S', cm/sn	12.8 ± 2.5	12.9 ± 2	0.438
Tricuspid E'/ tricuspid A'	0.80 (0.4 -1.74)	1.2 (0.75 – 2.24)	<0.001

* Student t testi ve Mann Whitney U test

Table 4. Correlation between tissue Doppler parameters with pulmonary function tests and mean pulmonary artery pressure.

	FEV1	FEV1/FVC	MPAP
	r - p	r - p	r - p
Tricuspid E	0.027 - 0.838	0.096 - 0.468	-0.127 - 0.333
Tricuspid E / A	0.215 - 0.099	0.256 - 0.049	-0.282 - 0.029
TA lateral E'	0.436 - <0.001	0.666 - <0.001	-0.634 - <0.001
TA lateral E'/A'	0.441 - <0.001	0.615 - <0.001	-0.563 - <0.001
MA septal E'	0.136 - 0.300	0.410 - 0.001	-0.374 - 0.003
MA septal E'/ MA septal A'	0.155 - 0.238	0.349 - 0.006	-0.292 - 0.024
Mitral E/ MA septal E'	-0.137- 0.295	-0.347 - 0.007	0.283 - 0.029

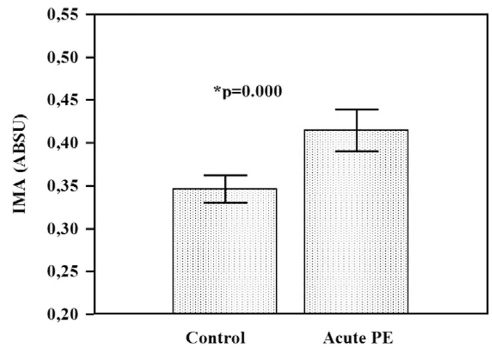
MA: Mitral annulus, TA: tricuspid annulus, MPAP: mean pulmonary artery pressure

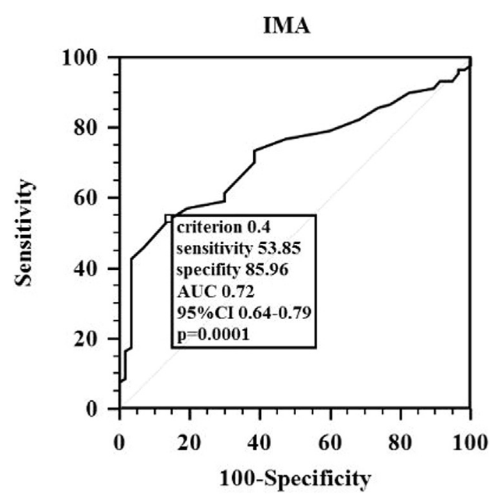
PP-193

The Role of Ischemia Modified Album in Acute Pulmonary Embolism

Zeynettin Kaya[1], Mehmet Kayrak[2], Enes Elvin Gül[3], Gökhan Altunbaş[2], Aysun Toker[5], Aysel Kıyıcı[6], Mehmet Gündüz[2], Hayruddin Alibasic[2], Hakan Akıllı[2], Alpay Arıbaş[2], Abdullah Tuncez[4]
[1]Department of Cardiology, Mevlana University, Konya, [2]Department of Cardiology, Necmettin Erbakan University, Konya, [3]Malkara State Hospital, Tekirdag, [4]Numune State Hospital, Konya, [5]Department of Biochemistry, Necmettin Erbakan Univesity, Konya, [6]Department of Biochemistry, Mevlana University, Konya

Objectıves: Acute pulmonary embolism (PE) is a life-threatening and a relatively common cardiovascular pathology. Although the pathogenesis of PE is well defined, there is no ideal diagnostic biochemical marker. Some of the previous studies were showed an increased ischemia-modified albumin (IMA) levels in acute PE but the relationship between IMA and right ventricular (RV) dysfunction is not examined in acute PE yet. The aim of this study was to evaluate the diagnostic value of IMA and its' relation with RV dysfunction in acute PE.
Methods: A total of 145 patients (75 males and 70 females) admitted to the emergency department with suspected acute pulmonary embolism were enrolled to the study. 89 patients were diagnosed as acute PE via computed tomographic pulmonary angiography. 56 patients that demographic and clinical characteristics were similar and the diagnosis of acute PE was excluded assigned to the control group. All patients were evaluated for RV dysfunction by using echocardiography.
Results: IMA values were significantly increased in acute PE compared with control group (0.41±0.06 vs. 0.34±0.11, p=0.000, respectively). Also systolic blood pressure, heart rate, body mass index, white blood cell count, creatinine, ejection fraction of the left ventricle, RV Sm, shock index were found statistically significantly different in the two groups. There was no association between IMA values and echocardiographic parameters indicating the severity of acute PE. IMA levels were positively correlated with shock index (r:0.35 p=0.016). ROC analysis demonstrated IMA values higher than 0.4 put the diagnosis at sensitivity of 53.85% and at specificity of 85.96% (positive predictive value: 86.0 and negative predictive value: 53.8) (AUC: 0.72 (95% CI 0.641 to 0.791) p = 0.001).
Conclusıon: IMA may be a new useful marker as an additional parameter in the diagnosis of acute PE but it failed to predict RV dysfunction.





PP-194

Investigation of Aortic Elastic Parameters [Aortic Distensibility (AD) and Aortic Straın (AS)] and Aortic Propagation Velocity in Dilated Cardiomyopathy Patients with or without Critical Coronary Artery Disease

Mesut Gitmez[1], Kamuran Tekin[2], Ali Yıldız[1], Yusuf Sezen[1], Recep Demirbağ[1]
[1]Harran University, Faculty of Medicine, Department of Cardiology, Şanlıurfa,
[2]Batman State Hospital, Department of Cardiology, Batman

Background and Aim: Dilated cardiomyopathy (DCM) is a progressive disease of heart muscle characterized by contractile dysfunction and ventricular dilatation with normal left ventricular wall thickness. There are many causes of cardiomyopathy including hereditary diseases, infections and toxins whereas ischemic cardiomyopathy is the most common cause of cardiomyopathies in North America and Europe. We aimed to investigate aortic strain (AS), aortic distensibility (AD) and aortic propagation velocity (APV) in DCM patients with either critical or non-critical coronary artery disease.
Materıal-Methods: The patients who underwent coronary angiography with complaint of angina at our institution were included in the study. 50 DCM patients with critical coronary artery stenosis of > 50% in at least one epicardial coronary artery, 56 DCM patients with non critical coronary artery stenosis of < 50%, 53 patients with normal coronary arteries were included in the study. Age, gender, weight, height, and biochemical parameters were noted and echocardiographic AS, AD, APV measurements were made. Groups were compared with either one way analysis of variance (ANOVA) or Kruskal Wallis tests with regard to continuous variables and Pearson chi-square test with regard to categorical variables. Pearson